

BROOKHAVEN NATIONAL LABORATORY NATIONAL SYNCHROTRON LIGHT SOURCE  Test Procedures	Number: LS-PSG-T002	Revision: A
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Subject:  <b>Hi-Potting Ring Magnets</b>		
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## **Introduction**

From time to time it may be necessary to check the main magnet circuitry for the existence of ground faults. This situation will usually arise after an extended maintenance period, where a short on the magnet string due to incidental contact may occur.

The high potential or **Hi-potter**, is essentially a variably controlled high voltage, low current dc power supply (6 kV at 10ma), equipped with over-current detector interlock to minimize the amount of current delivered to the circuit. This also allows the hi-potter to be energized only when the voltage control knob is set to zero.

***Warning! The Hi-potter generates voltages that are dangerous and may be fatal.  
Observe extreme caution when working with High Voltage.***

**Note 1: This is not a working hot permit or procedure. This procedure has been developed to preclude a working hot situation. LO/TO will be enforced when entering the power supply cabinet.**

**Note 2: Only an Authorized Employee, as outlined in the ES&H standards 1.5.0 Electrical Safety and 1.5.1 Lockout/Tagout Requirements will perform this procedure.**

**Note 3: This procedure will follow either NSLS Ring Security LS-OPS-0001, LS-OPS-0002, LS-OPS-0003 or Security Bypass LS-PSG-T001.**

## **Procedures**

1. Secure the power supply AC switch according to the "480vac Power Supply LO/TO" procedure. **See Note 2 & 3**
2. Isolate the magnet leads by disconnecting them from the power supply output terminals.
3. Before using Hi-potter, inspect for any signs of damage to its case, AC power cord and output leads.
4. Connect the ground lead of the Hi-potter to a suitable ground on the power supply. Attach the High Voltage lead to either one of the isolated magnet leads.

5. Plug in the Hi-potter AC power cord.

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6. With the voltage control set to zero the Hi-potter may now be energized. The front panel annunciator should indicate an “ON” condition.
7. Slowly increase the control knob until the specified voltage of 1200V is reached. If the device trips on over-current during this test, the likelihood of having a shorted magnet string is good. This procedure may be repeated to verify the initial test.
8. After completing the above test, turn off the hi-potter and disconnect AC power and output leads.
9. Reconnect the magnet lead to their respective terminals and secure power supply cabinet.
10. Remove lock and red tag from the AC switch. Power Supply may now be energized.

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